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HTA/JM-27/58

FIVE RADIO STATIONS IN THE SVOBODNYI AREA

I. INTRODUCTION

25X1C This Joint Photographic Intelligence Memorandum has been prepared in response to [REDACTED] requirement SI/R-41/58, and CIA requirement SI/R-34/58, requesting detailed information on communication facilities in the Amurskaya Oblast and Kuldur Area, USSR.*

25X1D Careful search of the [REDACTED] coverage revealed only five radio stations (see orientation map). Three of these (items 1, 2, and 3) appear to be major radio facilities. The other two (items 4 and 5) appear to be associated directly with airfields, and are probably used as ground-to-air or point-to-point communication stations, or both. In addition to the five radio stations, two blimp-shaped balloons were observed, one at the city of Svobodnyy and the other at Ukrainka.** These balloons could possibly be used to support weather forecasting equipment or temporary communication antennas. Particular attention was given to the search for landline communications which might support the Malaya Sazanka site, which is located at 51°15' N/128°01' E, 10 NM south-southwest of Svobodnyy.

II. SUMMARY

Within the relatively small southern section of Amurskaya Oblast and the adjacent Kuldur Area covered by aerial photography, five radio stations, two possible balloon-supported antennas, and limited landline communication facilities have been found.

* For purposes of this report, the Kuldur Area includes the photo-covered area between Kuldur (49°13' N/131°38' E) and the Birobidzhan (48°48' N/132°57' E).

** The town of Ukrainka (50°59' N/128°28' E) should not be confused with the town of Ukraina (51°07' N/128°33' E), which is 12 nm northeast of Ukrainka.

TOP SECRET CHESS

The stations near the cities of Svobodnyy (51°24'N/128°08'E), Kuybyshevka - Vostochnaya (50°55'N/128°28'E) and Birōbidzhan (48°48'N/132°57'E), appear to be the major radio facilities within the portion of the target area that is covered by photography. The existence of cooling facilities and guyed vertical radiators over 500 feet high at all three stations indicates that they were constructed to serve as high-power local broadcasting stations operating on medium or low frequencies.*

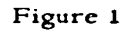
The station near Svobodnyy is apparently being converted from a medium- or low-frequency broadcasting station to a high-frequency point-to-point communication station. The fenced area has been enlarged to permit the erection of rhombic antenna arrays. One of the two tall vertical radiators has been removed. The other vertical radiator is still standing, but may also be removed as indicated by the fact that one of the guy wire anchors which support it is within the confines of one of the rhombic arrays. The conversion of this radio station to a long distance point-to-point communication facility suggests that it may be associated with the Malaya Sazanka site.

Since each of the rhombics at the Svobodnyy station has a dissipation line, it appears that it will be used for transmitting only. No receiving station has been found. It is perhaps significant to note that the probable general directions in which the rhombics at the Svobodnyy station could transmit are (1) westward toward Irkutsk, (2) westward toward Krasnoyarsk, and (3) eastward toward Komsomolsk.

No communication facilities are identified near Ukraina Airfield (50°10'N/128°27'E) or in the town of Kuldur. The image quality of photo coverage over the town of Blagoveshchensk (50°16'N/127°32'E) is of such quality that no interpretation is possible.

* Similar radio stations are located at the cities of Tashkent (41°20'N/69°18'E), Alma Ata, (43°15'N/76°57'E), and Komsomolsk (50°35'N/137°02'E).

This station appears to have been originally designed as a high-power, medium- or low-frequency local broadcasting station consisting of two vertical radiators possibly phased so as to be beamed toward Svobodnyy. One of these vertical radiators has since been removed. One guy-wire anchor of the remaining vertical radiator is located within the confines of one of the rhombic antennas, suggesting that it may also be soon dismantled (figure 1).



The station, which has been slightly increased in physical size as indicated by expansion beyond a former fence line, presently consists of a board-fenced operations area approximately 2,000 by 1,030 feet and a fenced support area approximately 670 by 320 feet. The increased operations area has been used to install portions of two rhombic antennas.

A firebreak and/or patrol road surrounding the installation is the only security measure noted. A 25-foot-wide road leads from the Svobodnyy/Rogachevka road to the control building.

The following is a tabulation of the various facilities within the installation that can be identified on aerial photography. Letters used to designate items in the tabulation correspond to the capital letters which identify the same items on the accompanying graphic.

A. Structures

1. Operations Area

- a. Single-story building approximately 20 feet square.
- b. Cooling basin 45 by 25 feet. No water is in the basin.
- c. Two tuning houses, each 10 feet square.
- d. Single-story building 10 feet square.
- e. Two-story control building consisting of two gable-roofed sections, 90 by 40 feet and 60 by 45 feet.
- f. Two earth-covered possible tanks, each [REDACTED] in diameter.
- g. Single-story, shed-roofed building 20 by 15 feet.
- h. Single-story, gable-roofed building 45 by 20 feet.
- i. Single-story, gable-roofed building 40 by 25 feet. 25X1D
- j. Single-story, gable-roofed building 40 by 25 feet.
- k. Single-story, gable-roofed building 40 by 20 feet.

2. Support Area

- l. Single-story, gable-roofed building 35 by 25 feet.
- m. Single-story, gable-roofed modified T-shaped building, 80 by 25 feet and 50 by 40 feet.
- n. Two-story, hip-roofed barracks-type building 110 by 40 feet.

HTA/JM-27/58

- o. Two-story, gable-roofed building 80 by 30 feet.
- p. Single-story, gable-roofed building 90 by 25 feet.
- q. Single-story, gable-roofed building 40 by 30 feet.

B. Antennas

Antennas 1 and 2 are single end-mast rhombic antennas; antenna 3 is a double end-mast rhombic antenna. All three have dissipation lines supported by small evenly-spaced poles, possibly two poles with a cross arm, which extend almost the entire length of the major axis. The direction in which antenna 1, and possibly antenna 2, transmits is suggested by the distance between the mast at the probable feed end of the rhombic antenna and the pole at the probable ground end of the dissipation line. This distance, approximately 95 feet, is greater than the distance of approximately [REDACTED] between the poles that support the dissipation line. This suggests that the antenna 1 transmits in an eastward direction and that antenna 2 possibly transmits in a westward direction. Due to forest cover some of the poles supporting the dissipation line in antenna 3 cannot be identified. However, a feed line which leads from the general direction of the control building to the east end of antenna 3 suggests that this antenna transmits in a westward direction. Dimensions (in feet) of the rhombic antennas are given below.

	Antenna 1	Antenna 2	Antenna 3	
Length of major axis	555	555	555	
Length of minor axis	320	320	255	
Length of one side	320	320	315	
Heights of masts (approx)	[REDACTED]			25X1D
Separation between end masts	--	--	65	
Azimuth of major axis	[REDACTED]			25X1D

25X1D

The dimensions of antenna 3 are consistent with the general dimensions of Soviet double-end mast rhombic antennas which are reported to be used for distance of 1,500 to 2,000 kilometers.* The city of Irkutsk is located 1,630 kilometers from Svobodnyy on an azimuth of [REDACTED].

One 510-foot-high guyed sectional vertical radiator (item 4) is located within a 45-foot-square fenced area. Four sets of anchors for guy wires are placed at distances of 225 and 315 feet from the base. A tuning house is located 50 feet south of the radiator, and an overhead feed line leads from the control building to the vertical radiator.

25X1D

Item 5 is a base for a guyed sectional vertical radiator. Four sets of anchors for guy wires are arranged in pairs about the base so that the anchors in each pair are placed at distances of 225 and 315 feet from the base. A tuning house is located 50 feet south of the radiator base. This vertical radiator was possibly removed so as not to interfere with the propagation characteristics of rhombic antennas 1 and 2.

Item 6 is a [REDACTED] stick mast. Although no function can be assigned to this mast, it may support microwave equipment or may be a part of a former antenna.

C. Overhead Power and/or Communication Lines

An overhead wire line passes the station on the south. This line can be traced on photography between Dubrovka to the east and a small settlement two miles to the southwest. From this line an overhead line branches off to the control building in the operations area. Another overhead wire line branches off the main line and leads toward the control building but it cannot be determined whether it continues into the operational area. Overhead wire lines connect the town of Dubrovka and the city of Svobodnyy.

* Ajzenberg, G. T., Antennas for Trunk Line Radio Circuits, pg. 247, Moscow 1940.

HTA/JM-27/58

IV. KUYBYSHEVKA-VOSTOCHNAYA RADIO STATION (50°53'N/128°31'E; UTM 52U DM 6737)

A high-power, medium- or low-frequency local broadcasting station, is located 3.1 nm southeast of the Kuybyshevka-Vostochnaya Railroad Station and 0.7 nm northeast of the Trans-Siberian Railroad. The present station consists of a fenced operations area approximately 1,980 by 1,175 feet and an irregularly-shaped board-fenced support area approximately 880 by 160 feet over-all (figure 2). The main entrance road leads into the installation through the fence on the northeast side. This road is hard-surfaced, 20 feet wide, and serves both the operations and support areas.

There is some slight evidence that this station may be expanded in size toward the northeast, where possible fence lines enclose an irregularly-shaped area of approximately 52 additional acres. Within this area a swamp is possibly being drained and three buildings are under construction. Following is a tabulation of the various facilities within the station that can be identified on aerial photography. Letters used to designate items on the tabulation correspond to the capital letters identifying the same item on the accompanying graphic.

A. Structures

1. Operations Area

- a. Two-story control building consisting of two gable-roofed sections, 50 by 40 feet and 45 by 35 feet. The smaller section has a skylight or longitudinal roof monitor 20 by 10 feet.
- b. Two cooling ponds, each 40 feet in diameter. Water is present in both ponds.
- c. Single-story, flat- or shed-roofed building, 25 feet square.
- d. Single-story building consisting of a gable-roofed section 45 by 20 feet and a shed-roof section 20 by 15 feet.
- e. Single-story flat-roofed building 25 by 15 feet.

TOP SECRET CHESS

9

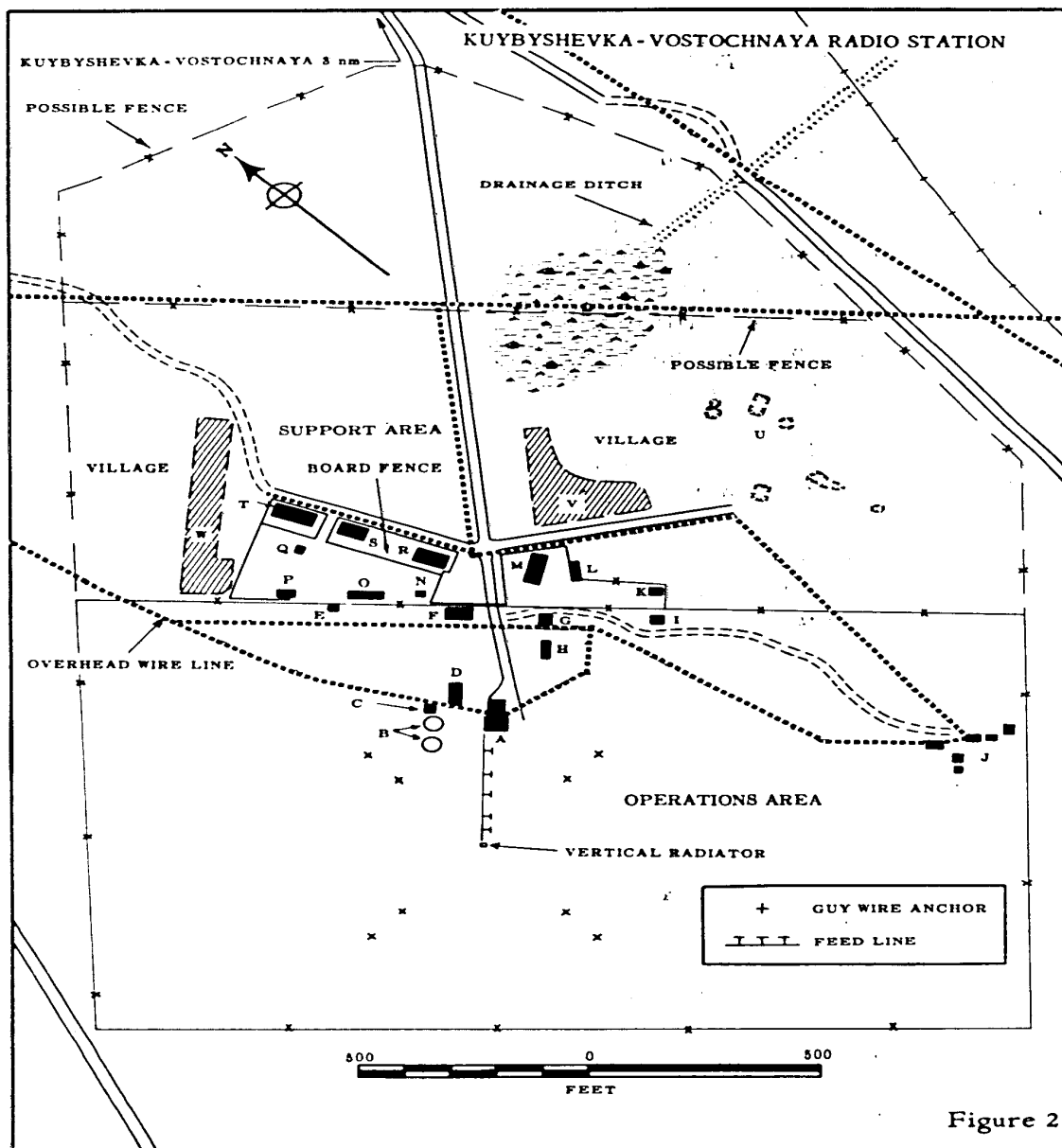


Figure 2

- 10 -

TOP SECRET CHESS

HTA/JM-27/58

- f. Single-story shed-roofed building 60 by 30 feet.
 - g. Single-story gable-roofed building 40 by 25 feet.
 - h. Single-story flat-roofed building 50 by 20 feet.
 - i. Single-story gable-roofed building 30 by 25 feet.
 - j. A group of six single-story flat-roofed buildings measuring 30 by 20 feet, 25 by 20 feet, .25 by 15 feet, 20 by 15 feet, 15 by 10 and 15 feet square.
2. Support Area
- k. Single-story flat-roofed building 30 by 20 feet.
 - l. Single-story gable-roofed building 50 by 20 feet.
 - m. Single-story hip-roofed building 80 by 35 feet, with two small shed-roofed entrances.
 - n. Single-story shed-roofed building 20 by 15 feet.
 - o. Single-story shed-roofed building 80 by 20 feet.
 - p. Single-story shed-roofed building 40 by 15 feet.
 - q. Single-story flat-roofed building 20 by 15 feet.
 - r. Building consisting of a two-story gable-roofed section 50 by 30 feet and a one-story shed-roofed section 30 by 20 feet.
 - s. Two-story hip-roofed building 60 by 30 feet.
 - t. One and one-half story hip-roofed building 100 by 35 feet with two gable-roofed dormers.
3. Other
- u. Three building excavations measuring 50 by 30 feet, 45 by 30 feet, and 25 feet square, and several unidentified areas of construction.
 - v. Village consisting of approximately eight houses.
 - w. Village consisting of approximately nine houses.

B. Antennas

A 510-foot-high guyed, sectional vertical radiator is located approximately 300 feet southwest of the control building. An overhead feed line leads from the control building to the vertical radiator. There are four sets of guy-wire anchors supporting the radiator. Each set consists of two anchors placed at distances of 255 feet and 345 feet from the base.

- 11 -

C. Overhead Power and/or Communication Lines

In addition to an overhead wire line which passes near the eastern fence, two overhead wire lines enter the installation. One line enters the operations area from the north and splits into two branch lines. One of these branch lines leads to the control building (item a) and to two other buildings (items c and d). The other branch line serves buildings in the northern part of the operations area (items e, f, g, h, and i), and then leads to the group of six buildings (item j) near the southeastern fence. The other overhead wire line approaches the installation from the northeast and splits into two branch lines. One of these branch lines serves three buildings (items r, s, and t) in the support area, and the other branch line serves a fourth building in the support area and then terminates at the group of six buildings in the operations area.

V. BIROBIDZHAN RADIO STATION (48°42'N/132°47'E; UTM 53 ULD 4396)

A high-power, medium-or low-frequency local broadcasting station within a board-fenced area of approximately 42 acres (1,785 by 1,040 feet) is located seven nm south-southwest of Birobidzhan on the west side of the Birobidzhan/Stepanovo road (figure 3). An entrance road connects the operations area with the Birobidzhan/Stepanovo road. This entrance road passes through a village which, in addition to houses, contains three support-type buildings (items k, l, and m) possibly associated with the station.

The following is a tabulation of the various facilities that can be identified on aerial photography within the operations area and possible support area.

A. Structures

1. Operations Area

- a. Single-story flat-roofed building 20 feet square.
- b. Cooling basin 60 by 40 feet. No water present in the basin.
- c. Two tuning houses, each 10 feet square.

- 12 -

HTA/JM-27/58

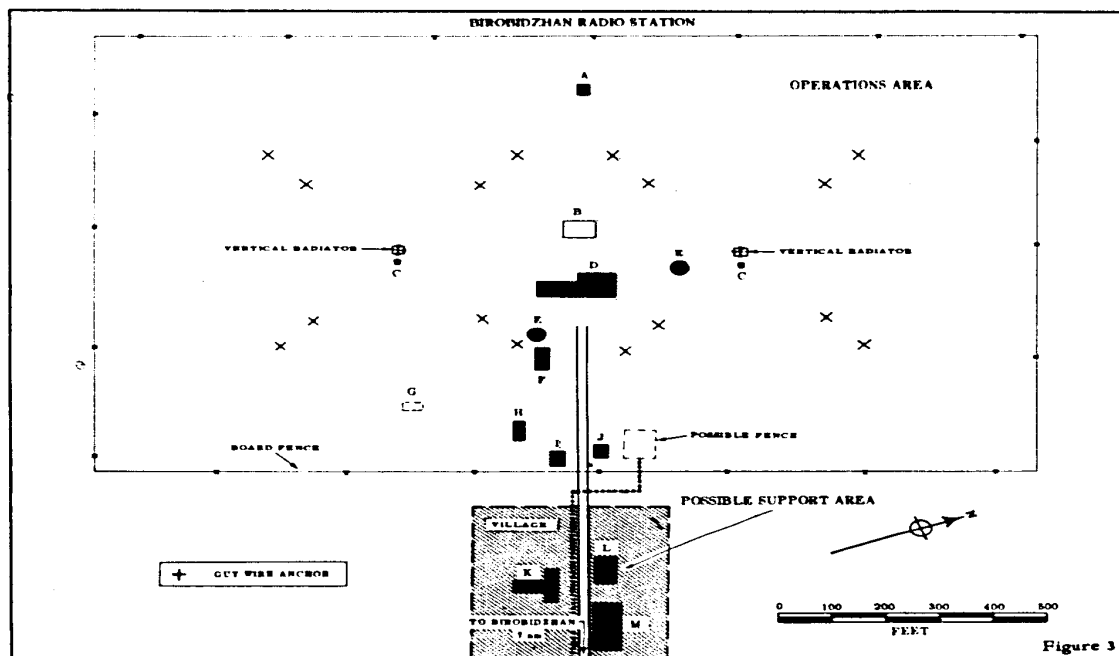


Figure 3

- d. Two-story control building consisting of two gable-roofed sections, 80 by 30 feet and 50 by 60 feet.
- e. Two earth-covered probable tanks, each 30 feet in diameter.
- f. Single-story gable-roofed building 50 by 25 feet.
- g. Building under construction 50 by 20 feet
- h. Single-story gable-roofed building 45 by 20 feet.
- i. Single-story gable-roofed building 30 by 25 feet.
- j. Single-story gable-roofed building 30 by 25 feet.
2. Possible Support Area
 - k. Single-story gable-roofed, T-shaped building, 80 by 20 feet and 60 by 25 feet.
 - l. Two-story gable-roofed building 75 by 40 feet.
 - m. Two-story gable-roofed building 110 by 50 feet.

- 13 -

B. Antennas

Two guyed sectional vertical radiators approximately 515 feet high are spaced 640 feet apart. Each is located within a small fenced area. A tuning house is associated with each radiator. Four sets of anchors for guy wires support each radiator. Each set consists of two anchors placed at distances of 230 and 325 feet from the radiator.

C. Overhead Power and/or Communication Lines

An overhead wire line which passes through the village terminates at a possibly fenced area just inside the entrance gate.

VI. OTHER FACILITIES

A. Arkhara Airfield Radio Station (49°27' N/130°02' E; UTM 52 UEK 7576)

A small fenced radio station covering six acres (495 feet square) is located two nm northwest of Arkhara and one nm northwest of Arkhara Airfield, with which it appears to be associated.

The station consists of a single-story gable-roofed control building 50 by 40 feet with a shed-roofed extension 20 by 10 feet and five stick masts (figure 4). Two stick masts (items 2 and 4) are 80 feet high and 165 feet apart. The other three stick masts (items 1, 3, and 5), approximately 60 feet high, are arranged in a straight line and spaced 210 feet apart. An overhead wire line connects the station with the town of Arkhara.

B. Svobodnyy Airfield Radio Station (51°27' N/128°07' E, UTM 52 UDM 3899)

A small fenced radio station encompassing an area of six acres (495 feet square) is located one nautical mile southeast of the Svobodnyy Airfield, and 2.5 nm north of the town of Svobodnyy (figure 5). The station consists of a single-story gable-roofed control building 50 by 40 feet with a shed-roofed extension 20 by 10 feet, a single-story gable-roofed support building 20 feet square with a stack on the roof, and six stick masts. Two stick masts (items 1 and 6) are [REDACTED] high and four stick masts (items 2, 3, 4, and 5) are 80 feet high. Three vehicles are parked in the fenced area. The station is served by an unimproved road and an overhead wire line from the Svobodnyy Airfield support area.

- 14 -

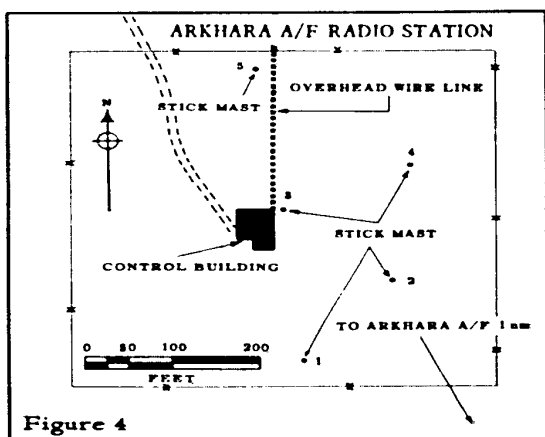


Figure 4

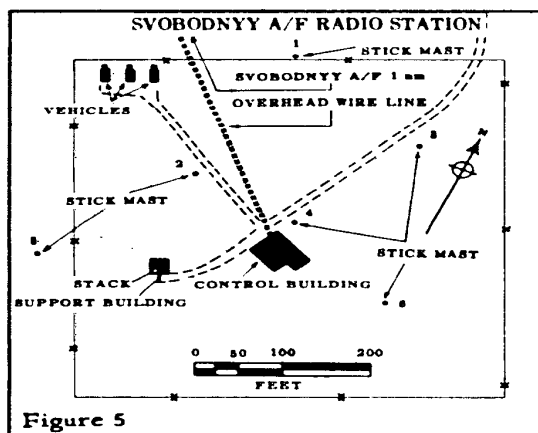


Figure 5

C. Blimp-shaped Balloons

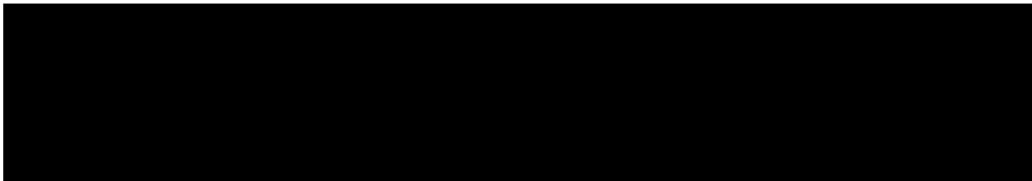
25X1D Blimp-shaped balloons have been found at the towns of Svobodnyy and Ukrainka. Each of these facilities consists of a blimp-shaped balloon [REDACTED] at its widest point. These balloons could possibly support a wire antenna.

D. Landline Communications

25X1D An overhead power and/or communication line leads southwest from Svobodnyy along the Svobodnyy/Blagoveshchensk road, past the east side of the Malaya Sazanka site, to an undetermined location. This line is carried by double cross arms on [REDACTED] wooden poles spaced 190 feet apart. A branch from this line leads into a support area of the Malaya Sazanka site. Another overhead line leads from a military-type area located in the town of Malaya Sazanka (51°15' N/128°05' E) into the operational area of the Malaya Sazanka site. This line is carried on wooden poles less than 20 feet high and having no cross arms. No overhead or underground lines can be traced directly between the Malaya Sazanka site and the Svobodnyy Radio Station. An overhead line, however, does lead from the Svobodnyy Radio Station in the general direction of the site, and in addition it is possible that the overhead lines from the site and from the radio station to the town of Svobodnyy may join in some way within the town.

PHOTO DATA:

25X1D



MAP DATA:

World Aeronautical Chart 203 (U)

AMS Series N504 NM 52-2 (U)

N504 NM 52-5 (U)

N504 NM 52-9 (U)

L542 NM 53-10 (U)

ATMP 0203-8630-25A (Prov) (S)

0203-9995-0-25 (C)

0203-9998-0-25A (Prov) (S)

0203-9999-1-25 (C)

0203-9999-4-25 (C)

OTHER:

25X1D

Navy, Moscow. Alusna [REDACTED] 3 Jul 58. (S)